

A Report to the

Missouri Commission on Higher Education

GRADUATE EDUCATION in MISSOURI

By Pro

Graduate Programs Advisory Committee

APRIL, 1966



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PREFACE

To the Missouri Commission on Higher Education has fallen the task of "designing a co-ordinated plan for higher education in the state . . . which shall be based on the studies indicated above and on such others as may be deemed relevant by the Commission."

After working for rather more than two years and issuing one interim report, the Commission is now approaching the completion of the initial version of a co-ordinated plan which will cover both publicly—and voluntarily—supported education beyond the high school on a statewide basis.

This has been—and continues to be—a formidable undertaking. The Commission, although established by statute, possesses no coercive power whatsoever. The effectiveness of any plan it may evolve (and, thereafter, keep current), as a result, must ultimately depend on the inherent logic and sound judgment of what the Commission proposes.

The members of the Commission have at all times been acutely aware of that fact. Happily, the enabling legislation authorized provision not only for the employment of a professional staff and regular consultation with a distinguished group of educators and laymen but also for help from specialists, if needed, to investigate various aspects of higher education as they relate to conditions in Missouri. The Commission, furthermore, has been exceedingly fortunate in the practical support continuously given it by the Governor and General Assembly of this state.

One of the most critical areas of higher education today, by common consent, involves the programs and facilities available for training at the graduate level. Accordingly, an advisory committee composed of persons with special experience in that field was invited to assess Missouri's situation where graduate study is concerned, taking account of work presently offered by both public and private institutions, and to make any recommendations it saw fit for the future.

The Commission's primary purpose here was to secure the best possible background material in connection with the drafting of its master plan. The report of the committee, however, seemed so important to the Commission members as to warrant its separate circulation in advance. The document speaks for itself. But the Commission would like to take this opportunity gratefully to acknowledge the extraordinary care expended upon its preparation and to thank all the members of the committee for their assistance with a highly technical subject.

INTRODUCTION

The graduate school is the capstone of the educational edifice. If this stone is of an inferior quality, or is undersized, or is improperly placed, the entire educational structure is adversely affected.

At the beginning of the 1965-66 academic year 15,010 students enrolled for graduate classes on thirteen Missouri campuses. Are the present graduate programs adequate to meet the needs of the state? How does Missouri rank nationally in graduate education? What are the consequences—immediate and eventual—of strong graduate programs?

In order to consider these and related questions this report will (a) describe briefly the graduate programs presently operating in the state, (b) discuss some of the ramifications of graduate education for contemporary society, and (c) present several recommendations regarding graduate education in Missouri.

Graduate Programs In Missouri

Twentieth century Missouri is a complex society of expanding metropolitan centers and scattered agricultural regions, of new manufacturing industries and increasingly technical farming operations, of a renewed mining economy, and a new and burgeoning space industry. An age of urban renewal, divided highways, high-rise hospitals, and sprawling new schools requires architects and engineers, teachers and lawyers, researchers and physicians, writers and planners, executives and managers, consultants and case workers. The education of these and other highly trained specialists is the burden of the graduate school.

In Missouri, as elsewhere, graduate education is closely related to undergraduate education. At these two instructional levels there is a strong involvement of both public and private colleges and universities. The graduate programs in the state, although having many common qualities, will vary from campus to campus depending upon such factors as the size of the institution, the laboratory or library facilities provided, the educational emphasis of the campus, the faculty available, and the accreditation granted to the college or university. There is no single pattern for graduate instruction in the state, but a rich blend of many programs and majors from the classics to computer science.

Doctorates are granted at St. Louis University, Washington University, and at the Columbia, Kansas City, and Rolla campuses of the University of Missouri. Students are now enrolled in sixth year educational specialist programs at Central Missouri State College as well as on the Columbia campus of Missouri University and at Washington University. Master's degrees are awarded by all of the institutions previously listed as well as by Drury College, Lincoln University, and Northeast Missouri State Teachers College. In addition, the University of Missouri offers residence graduate credit and the Master of Education degree at its Cooperative Graduate Centers at Northwest Missouri State College, Southeast Missouri State College, Southwest Missouri State College, and at the University of Missouri in St. Louis.

As has been the case with undergraduate enrollments since World War II, graduate enrollments have climbed nationally. There have been increasing numbers of students earning both master's degrees and doctorates. This is remarkably illustrated by the fact that 45 percent of all the master's degrees awarded in the United States from 1870 to 1962 were granted during the years 1953-62. While the production of master's degrees rose 67 percent from 1949-62, the graduation of doctorates increased 130 percent.*

Another change in graduate education has been the greater number of institutions awarding graduate degrees. In 1958 some 569 colleges and universities gave graduate degrees; in 1962 the number was 621 institutions. A recent study by the American Council on Education states that "nearly 30 percent of the liberal arts colleges, about 63 percent of the teachers colleges and all the universities in the United States award the master's in one form or another." There is another trend in graduate education toward greater enrollments in public institutions. During the academic year 1947-48, 58 percent of the master's degrees issued in the United States came from private colleges and universities. During the academic year 1961-62, 60 percent of the master's degrees were granted by the public institutions.*

Moving from the national to the state level, Table I (page 5) indicates the number of graduate degrees granted by Missouri colleges and universities during the spring and summer of 1965. The two private universities in St. Louis—Washington University and St. Louis University—awarded 40.8 percent of the graduate degrees during the spring and summer of 1965. Combining the graduates of Drury College with those from Washington and St. Louis universities it can be seen that the private institutions awarded approximately 43 percent of the graduate degrees and the public institutions approximately 57 percent.

It is illuminating to compare the position of Missouri among the states in its higher education efforts and particularly in its performance in graduate education. In such an evaluation it is difficult to separate graduate from undergraduate education, since both are inextricably intertwined in so many ways. High quality undergraduate training provides the indispensable base on which graduate training must be built. A large portion of the ablest faculty members and departments are simultaneously engaged in graduate and undergraduate education. Any state-by-state assessment of graduate education effort must take into account the total higher education enterprise.

Table II (pages 6 and 7) summarizes the results of constructing a Higher Education Performance Index (HEPI) based on nine separate measures of higher and graduate education performance. Each of the nine measures is expressed as a percentage of the national level of performance before being averaged into a composite index of performance in higher education for a given state.

Two of the measures assess the success of each state in developing a well-educated adult population: (1) the median school years completed and (2) the percentage of college graduates among the 1960 population

^{*}Graduate Education Today, Everett Walters, Ed., American Council on Education, 1965, pp. 76-96.

TABLE I

GRADUATE DEGREES AWARDED BY MISSOURI COLLEGES AND UNIVERSITIES
DURING THE SPRING AND SUMMER OF 1965

| | M.A. | M.S. | M.Ed. | Other Mast. | Ed. D. | D.D. S. | D.V. M. | J.D. | M.D. | Ph. D. | Other Doct. | Ed. Sp. | Lic. Theo. | % of State Total | TOTAL |
|--------------------------|------|------|-------|----------------|-----------|------------|------------|------|------|-----------|----------------|------------|---------------|---------------------|-------|
| Central Mo. State | - 48 | 25 | 92 | | | | | | | | | 5 | | 4.4 | 170 |
| Drury College | | | 69 | 20 | | | | | | | | | | 2.3 | 89 |
| Lincoln University | | | 13 | | | | | | | | | | | .3 | 13 |
| Northeast STC | 241 | | | | | | | | | | | | | 6.3 | 241 |
| St. Louis University | 181 | 108 | 112 | 97 | | 46 | | 53 | 89 | 48 | | | 31 | 20.0 | 765 |
| *U. of Mo. Columbia | 207 | 334 | 316 | 34 | 37 | | 27 | 74 | 80 | 133 | | 8 | | 32.7 | 1250 |
| U. of Mo. Kansas City | 112 | 9 | | 26 | | 112 | | 41 | | 4 | 3 | | | 8.0 | 307 |
| U. of Mo. Rolla | | 182 | | | | | | | | 13 | | | | 5.1 | 195 |
| Washington University | 291 | 97 | | 143 | 3 | 38 | | 64 | 83 | 56 | 14 | 5 | | 20.8 | 794 |
| TOTAL | 1080 | 755 | 602 | 320 | 40 | 196 | 27 | 232 | 252 | 254 | 17 | 18 | 31 | 99.9 | 3824 |

^{*}Graduate students at the Cooperative Graduate Centers at the state colleges (Maryville, Cape Girardeau, Springfield) and at the University of Missouri at St. Louis are included in the figures for the University of Missouri at Columbia.

TABLE II
HIGHER EDUCATION PERFORMANCE INDEX, UNITED STATES BY STATES, 1960 - 1962
Average of Relatives (United States Total Taken as 100)

| | Rank on HEPI | Name of State | Higher Education Performance Index (HEPI) | (1) Medi Scho | (2) Coll Grad | (3) Unde | (4) Grad | (5) Bach | exes of (6) Mast | (7) Doct | (8) Coll | (9) Coll |
|--------------|---|--|---|--|---|---|---|---|--|---|---|--|
| | | United States Total | 100.0 | 100 | | | | • | Degr | Degr | Facu | Expe |
| _ <u>6</u> — | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | United States Total District of Columbia Massachusetts Utah Colorado Connecticut California New York Indiana Oregon Kansas Vermont Iowa Arizona Michigan Washington Wisconsin Illinois Oklahoma Rhode Island Minnesota Michelan | 100.0 318.6 162.8 154.2 144.2 125.8 125.4 125.3 120.1 112.8 112.6 111.6 110.9 110.6 108.8 106.0 105.3 104.9 104.7 | 100 110 109 115 114 104 110 101 102 111 110 103 107 107 107 107 102 114 98 99 98 99 98 | 100 186 114 132 139 123 127 116 82 110 106 95 83 118 88 121 87 95 103 86 97 | 240 121 167 118 94 151 96 91 109 124 135 108 132 93 121 98 100 125 93 102 | 531 163 164 112 188 157 186 112 26 81 154 141 91 75 100 97 119 75 | Degr 100 236 152 196 147 97 87 104 116 126 133 164 121 108 102 114 107 87 126 128 | Degr 100 517 204 145 219 145 98 149 174 126 134 155 83 145 83 98 100 123 66 | Degr 100 405 243 152 209 168 118 145 183 120 80 8 189 51 126 103 174 138 85 129 | | |
| | 22 23 24 25 26 27 28 | Nebraska Wyoming Maryland New Mexico Pennsylvania New Hampshire Missouri Montana | 99.2 98.9 96.6 90.0 | 109 114 98 106 96 103 91 109 | 88 113 121 127 83 92 81 97 | 119 98 95 90 84 100 101 | 73 71 61 88' 120 97 45 69 47 | 124 150 104 82 68 105 141 105 121 | 77 91 119 57 130 77 70 87 87 | 125 75 89 112 46 86 18 71 23 | 118 111 93 118 86 97 103 100 88 | 112 94 102 119 96 85 131 82 96 |

| 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 | South Dakota Delaware North Dakota Ohio Texas Louisiana North Carolina Tennessee New Jersey Hawaii Nevada Idaho Florida Mississippi Virginia Arkansas Kentucky Alabama West Virginia Georgia Maine South Carolina Alaska Component indexes of the Higher Educati | | 98 105 88 103 98 83 84 83 100 107 114 111 103 84 93 84 82 86 83 85 104 82 114 | 74 131 73 91 104 87 82 71 109 117 108 94 101 73 109 62 64 74 68 81 71 90 123 | 108 58 112 92 103 94 81 90 70 83 83 97 80 95 73 79 84 74 83 65 66 68 22 | 44 107 48 74 59 64 50 51 96 139 116 30 42 40 24 34 37 9 26 12 | 135 53 130 91 96 95 88 96 70 63 53 82 60 102 76 94 91 83 89 74 100 79 18 | 102 89 89 77 79 66 82 96 66 32 40 66 55 66 38 87 62 64 70 45 49 30 26 | 14 86 32 68 58 62 83 62 71 5 26 86 67 25 28 20 6 23 3 8 6 | 93 70 95 76 76 92 85 95 63 56 75 84 67 74 76 68 70 57 62 74 68 79 | 100 66 93 74 72 87 91 73 62 65 64 80 58 64 76 65 55 62 53 64 69 58 80 | |
|--|--|--|---|--|---|--|--|---|---|--|---|--|
|--|--|--|---|--|---|--|--|---|---|--|---|--|

*Nine Component indexes of the Higher Education Performance Index:

- (1) Medi Scho: Median school years completed by population age 25 and over, 1960 (10.6 years taken as 100).
- (2) Coll Grad: Percent of population age 25 and over who have completed four or more years of college. 1960 (7.7 percent taken as 100).
- 1961-62 undergraduate degree credit enrollment per 100,000 population (1,856 taken as 100). (4) Grad Stud:
- 1961-62 graduate degree credit enrollment per 100,000 population (222 taken as 100). (5) Bach Degr:
- 1961-62 bachelor's or first professional earned degrees per 100,000 population (223 taken as 100). (6) Mast Degr:
- 1961-62 master's or second-level professional earned degrees per 100,000 population (47 taken as 100). (7) Doct. Degr:
- 1961-62 earned doctorates with dissertation per 100,000 population (6.5 taken as 100).
- (8) Coll Facu: 1961-62 faculty members of institutions of higher education per100,000 population (237 taken as 100).
- (9) Coll Expe: 1960 per capita expenditures for current operations by all institutions of higher education (\$31.24 taken as 100).

Source: Calculated from data available in: U. S. Bureau of the Census, Statistical Abstract of the United States, 1964, Washington, D. C., 1964, pp. 11, 114, 134, 135: U. S. Bureau of the Census U. S. Census of Population: 1960: General Social and Economic Characteristics, United States Summary, Final Report PC (1)-1C, Washington, D. C., 1962, pp. 1-259, 1-260.

age 25 and over. Missouri is below the national average on both of these measures, nine percentage points below in median schooling and 19 percentage points below in college trained population.

Two measures relate the 1961-62 enrollment in (3) undergraduate and (4) graduate degree credit programs to the total population of the state. In undergraduate enrollment Missouri is slightly above the national average with a score of 101. In graduate enrollment Missouri is 31 percentage points below the national average with a score of 69.

Three measures relate the 1961-62 record of earned degrees awarded to the total population of the state. In its bachelor's or first professional earned degrees awarded (measure #5), Missouri is five percentage points above the national average. In master's or second professional earned degrees awarded (measure #7), Missouri is 29 percentage points below the national average, with a score of 71.

Measure #8 relates the total number of part-time and full-time faculty members in institutions of higher education in 1961-62 to the total population of the state. Missouri is precisely at the national average on this measure.

Measure #9 presents on a relative or percentage basis 1960 per capita expenditures for current operations by all institutions of higher education, including both public and private colleges and universities. The Missouri per capita expenditure for higher education is 19 percentage points below the national average.

When the nine measures are averaged, Missouri's Higher Education Performance Index is 87.4 or 12.6 percentage points below the national average. Its HEPI rank among the 51 states (including the District of Columbia) is 27th, placing Missouri among the lower half of states in higher education performance.

When Missouri's HEPI score is compared with the scores of bordering states the results are as follow:

| State | НЕРІ |
|-----------|-------|
| Kansas | 112.6 |
| Iowa | 110.9 |
| Illinois | 104.9 |
| Oklahoma | 104.7 |
| Nebraska | 100.9 |
| MISSOURI | 87.4 |
| Tennessee | 79.7 |
| Arkansas | 66.4 |
| Kentucky | 64.8 |

It is particularly a matter of concern that Missouri's two largest HEPI scores were on measure #4 (1961-62 graduate degree credit enrollment per 100,000 population) and measure #7 (1961-62 earned doctorates with dissertation per 100,000 population).

Missouri not only falls below the national average in its higher education efforts and achievements, but its performance in relation to its population is particularly weak in graduate education.

What graduate enrollments should we anticipate in Missouri in the future? Many factors could influence enrollment levels. However, projecting enrollments on the basis of the trends since World War II, we can anticipate a doubling of graduate enrollments by 1973, as follows:

| 1965 | 15,010 (actual enrollment) |
|------|----------------------------|
| 1966 | 17,294 |
| 1967 | 18,171 |
| 1968 | 19,904 |
| 1969 | 21,807 |
| 1970 | 23,708 |
| 1971 | 25,358 |
| 1972 | 27,091 |
| 1973 | 29,226 |

The Importance of Graduate Education

To understand the full impact of the graduate school in our society we must look beyond the customary functions of the school which relate to professional training, research, and service to the community. In this section we will observe the contribution of the graduate school to (1) the very quality of life in our society, (2) the total educational structure of the state, and (3) the development of the economy.

Graduate schools contribute to the excitment and pleasure of living. When man studies the rocks, the soil, the plants and animals which surround him, the vast solar system, and the ways in which the human mind operates, he observes a world which is complex, intricate, and beautiful. Where did man acquire his detailed knowledge of this intriguing physical universe? Much of man's knowledge has come from graduate schools, from the research and scholarly work carried on there by both professors and students.

But, this is not the limit of the enrichment of our lives by the universities. Man is not satisfied with the world as he finds it. He continually contributes to the beauty and pleasure of his world through architecture, painting, sculpture, music, and literature—activities we describe as the fine arts. This passion for self-expression and creation in the arts is increasingly conspicuous in our society where we have more leisure, more skills, and more materials with which to work. True, much of this activity has, in the past, been developed outside of universities. In this century, however, more and more of the creative artists have found thir natural homes in the university setting. While universities have no monopoly on the fine arts, the graduate schools are certainly closely related to the development, encouragement, and appreciation of these arts.

The society in which we live is essentially optimistic. Ours is not the freewheeling optimism of the frontier, however, since we now know that many problems are difficult to solve and some problems have no solutions. Our optimism is a more intelligent and qualified optimism. Still, the entire society in which we live is stimulated by the belief that most problems have solutions if we only work hard enough to find them and are intelligent enough to apply the answers which we discover.

Many years of research work in educational institutions has demonstrated the fact that where we need new ideas we can expect creative thinking from scholars, where we need new facts we can look to our investigators to carry on the suitable research to discover these new facts, and where there are no answers to problems we can save the time and effort of trying to find a solution, if we know that there are convincing arguments based upon fundamental principles which make an answer impossible.

The graduate school is not alone in contributing to this basic attitude of optimism. It is the only part of education which insists on creativity and at the doctoral level demands that every student exert himself to the maximum to make a new contribution to knowledge. That these attempts are not always successful is not important. The significant fact is that the large part of our creative thinking and new knowledge comes from universities. The universities do share this role in society with research institutes and with government laboratories but frequently both of these are concerned with practical problems and not with the total range of social problems.

The importance of optimism can hardly be overemphasized. A society which is discouraged and feels that its problems are hopeless is not a pleasant place in which to live and in all likelihood is going to deteriorate rather than progress.

A word in which there is hope of success as a result of serious effort and a world which is fundamentally beautiful and interesting offers the strongest possible motivation for individual effort. In this kind of world it is worthwhile for people to strive to make their lives more significant and more useful. Although the public is scarcely aware of these influences, they are important in setting the pattern of our living and have an influence on every citizen of the state.

Secondly, there are few areas of society so directly related to graduate programs as the total educational structure of the state—including all levels from the elementary school through the university.

Today there is a trend toward more education for teachers at all levels. Approximately 20 percent of the states now have regulations calling for 150 semester hours (5 years) of undergraduate and graduate work combined for permanent certification as an elementary or secondary teacher. In November, 1964, the Missouri State Teachers Association adopted a resolution urging "that we continue to move toward the fifth year of cultural and professional preparation for all teachers."

The records of Missouri teachers during the past two decades show that teachers are securing more and more professional preparation. In the fall of 1947 only 9.1 percent of the elementary teachers in Missouri had 150 hours of work. In the fall of 1962, 33.9 percent had reached the 150-hour level. The statistics for secondary teachers show the same development. In the fall of 1947, 43.1 percent of the high school teachers had 150 hours of work; in 1962, 59.4 percent had attained the 150-hour goal.

Both the growing desire of teachers for self-improvement, and the continuing pressure of many public school salary schedules which demand more and more professional preparation will have the effect of encouraging the 35,000 public school teachers in the state to enroll for graduate classes.

The state requires 3,000 new teachers a year to take the places of those withdrawing from teaching and 500 additional teachers annually to handle elementary and secondary enrollment growth. These new teachers represent a reservoir of demand for graduate training. Add to this the effect of pronouncements by professional organizations such as the American Association of School Administrators that six years of work be minimal for certification in certain fields such as administration and supervision.

Moving from the elementary and secondary levels to the colleges and universities, it is clear that there will be a continuing need for more college teachers as college enrollments increase. Table III (page 11) indicates the projected new faculty needs for Missouri public and private junior colleges, four-year colleges, and universities from 1965 to 1973.

TABLE III
PROJECTED NEW FACULTY NEEDS IN MISSOURI COLLEGES
AND UNIVERSITIES

| | Doctorates | Less than Doctoral Level | Total |
|------|------------|-----------------------------|-------|
| 1965 | 599 | 589 | 1188 |
| 1966 | 482 | 446 | 928 |
| 1967 | 351 | 363 | 714 |
| 1968 | 407 | 426 | 833 |
| 1969 | 455 | 486 | 941 |
| 1970 | 473 | 511 | 984 |
| 1971 | 429 | 481 | 910 |
| 1972 | 444 | 497 | 941 |
| 1973 | 510 | 574 | 1084 |

Missouri is presently falling short of meeting its needs in the preparation of college teachers. For example, the number of doctorates needed for 1965 was approximately double the Ph.D. and Ed.D. output of Missouri universities in 1965. While elementary and secondary teacher supply and demand is largely influenced by factors over which a state has control, this is not true of college teachers. Missouri institutes must compete on a national market for college teachers. Missouri is not presently carrying its fair share of the burden in training college teachers.

If we are to encourage the creation of an improved educational system in Missouri from the elementary school through the university, the development of stronger, larger graduate programs is an important step. The well educated teacher is still the key factor in the educational process.

Thirdly, today as in the past, economic development is closely related to graduate education. Missouri's economy is historically rooted in the research achievements in agriculture, mining, and other extractive industries which were fostered at the University of Missouri. The partnerships between the Federal government, the State of Missouri, the state's researchers and educators, and private enterprise have enriched our economy in countless ways.

But Missouri is now more than 70 percent urban. Most of the population increase of past decades has been in the great metropolitan areas of

the state. And it is the urban-industrial sector in which the future expansion of Missouri's economy primarily lies. If Missouri is to compete effectively on the national and international scene, the state must lead on the frontiers of research, industrial development, and the related graduate training complex.

Increasingly, key specialists in the forefront of industrial development are the doctoral and post-doctoral products of our leading graduate centers. A recent poll taken by the magazine **Industrial Research** of five hundred industrial research directors, included the question: What are the prime attractions that a community has for industries or their research division? The leading reason, cited by three-quarters of the interviewers, was the proximity of a university of high quality.

The lagging participation of midwestern states in national research and development activities represents one part of a more general regional lag in economic growth and development. Education, particularly higher education and research-linked graduate education, plays an increasingly crucial role in the pace and scope of regional development. Just as the United States owes its world position in large measure to the technological and scientific training of its people, so states like California, Massachusetts, and New York owe the strength of their economies and the pace of their economic development in part to the outstanding quality of such of their graduate-oriented universities as the University of California, The California Institute of Technology, Columbia, Cornell, Harvard, The Massachusetts Institute of Technology, and Stanford.

Current evidence suggests that Missouri occupies a position near the national average on measures of economic well-being, with a very slow and precarious upward advance in its national economic position in very recent years. The continued improvement of the economic position of the state would appear to be closely related to the continued development of research-rooted industries. These industries are more likely to develop around university-graduate school centers.

Some Recommendations For Graduate Education In Missouri

- 1. It is recommended that the public school teaching profession in Missouri be encouraged in its development of a fifth year of work as a requirement for teaching. It is recommended that instead of an arbitrary requirement of a master's degree that alternative plans be developed by the State Department of Education requiring either a master's degree or the completion of a program of at least 30 hours of graduate work approved by an institution offering graduate work.
- It is recommended that in view of the tremendous emerging and continuing needs for graduate work for teachers in the elementary and secondary schools and junior colleges that the state colleges develop strong graduate programs designed specifically to meet these needs.
- 3. It is recommended that the University of Missouri system and the private universities—Washington and St. Louis—analyze jointly the needs for teachers for Missouri's four-year colleges. The number of doctorates granted in Missouri will need to be sharply increased. The

existing six-year programs at the above institutions and at Central Missouri State College will also serve to meet college teaching needs. It must be remembered, however, that doctoral production is related more to national needs than state needs.

- 4. The key needs in Missouri are: (1) major expansion in the support of public and private institutions of all kinds; (2) recognition of the desirability of division of labor between strong systems of public and private (a) junior colleges, (b) four-year colleges, (c) five-year institutions for the training of bachelor's, master's and related professional candidates, and (d) a very limited number of centers of major graduate and research excellence for training which includes strong doctoral programs.
- 5. It should be anticipated that graduate enrollments in Missouri, following present enrollment trends; will double by 1973.
- 6. Since research-linked graduate education plays an increasingly crucial role in the pace and scope of regional economic development, it is important to the welfare of the state to encourage the development of quality graduate centers in Missouri.

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